

MISFIRE DETECTION IN AN INTERNAL COMBUSTION ENGINE

ABSTRACT OF THE DISCLOSURE

A method and system for a misfire detection acquires (301) a series of acceleration data (302) representative of acceleration behavior of an engine. The data is sampled (304) to obtain acceleration data samples at a rate sufficient to obtain up to fourth-order perturbations of the data. The samples are filtered (322) to provide bandwidth limited samples, which are provided to at least two channels (325, 329). The samples are pattern matched (332) in a first channel to enhance harmonic phenomena and pattern canceled (330) in a second channel to enhance random phenomena. Hard and random misfires are detected (334) dependent on a magnitude of the filtered acceleration data samples. Preferably, a third channel (335) is added to detect multiple misfires.